**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604

**DATE:** NOV 13 2014

**SUBJECT:** INSPECTION REPORT – West Bay Exploration Co., Jackson County, Michigan

Facility: Haystead 1-9A (aka Norvell 9 CTB), Norvell Township

**FROM:** Natalie Topinka, Environmental Scientist
AECAS (IL/IN)

**THRU:** Nathan Frank, Chief
AECAS (IL/IN)

**TO:** File

**Date of Inspection:** August 28, 2014

**Attendees:** Natalie Topinka, Environmental Scientist, U.S. EPA
Kristy Shimko, Geologist, Office of Oil, Gas and Minerals, MDEQ
Scott Miller, Supervisor, Air Quality Division, MDEQ
Terry R. Pelham, Production Foreman, West Bay Exploration

**Purpose of Inspection:** The purpose of conducting an inspection of West Bay Exploration Co.'s Jackson County operations was to assess compliance with the Michigan State Implementation Plan and any applicable air permits.

**Company Description and Background:**

Location: Approximately 10800 Palmer Road, Brooklyn, Michigan 49230
(Latitude: 42.139269, Longitude: -84.204903),

Primary Contact: Terry R. Pelham, Production Foreman

West Bay Exploration Company (West Bay) has headquarters in Traverse City, Michigan, with operations in several states including Michigan, Texas, Oklahoma, and North Dakota. The company employs 20 people and many more contractors and lease operators.

## Opening Conference

I arrived at the Haystead 1-9A (aka Norvell 9 CTB) facility at 2:20 pm, with Ms. Shimko and Mr. Miller of MDEQ, and Mr. Pelham of West Bay. We had all come directly from inspecting another West Bay facility so introductions were made previously. The following information was obtained verbally from Mr. Pelham during the inspection and in subsequent clarifying correspondence.

## Haystead 1-9A (aka Norvell 9 CTB) Facility Overview

Mr. Pelham estimated that the first well serving the Norvell 9 facility began producing in about 2010. Currently on-site are sixteen 400-barrel storage tanks for oil and water (brine). Seven of these tanks are presently empty and will be used for holding brine prior to disposal in the planned injection well that has yet to be permitted. Of the nine tanks in use, six are for oil, two are for brine, and one of the tanks slated for disposal brine is being used for condensate. The tank battery is equipped with a vapor recovery unit (VRU), and includes one Enardo pressure relief valve located above the northwesternmost tank in the battery. The eight tanks that are planned to hold brine for disposal are already connected to the VRU. Therefore, vapors present in the headspace of the currently used oil and brine tanks can flow freely to empty tanks. However, recently West Bay had discovered that the operation of the VRUs at several facilities, especially during truck loading, introduced high levels of oxygen into the gas mix that was putting the gas out of specification for delivery into the pipeline. In addition, the elevated concentration of oxygen was causing excessive corrosion to components of the heater treaters. Therefore, on July 18, 2014, West Bay had shut down the VRU at the Norvell 9 and several other West Bay facilities.

The facility receives product from eight wells, so eight heater-treaters are on site. There are also four compressors (three production compressors and one booster/lift compressor) two glycol dehydrators, and a flare. The facility also receives gas from other nearby facilities for compression and removal of natural gas liquids (NGL). The NGL are stored in one of four tanks before transportation off-site.

Mr. Pelham stated that the flare pilot light was monitored remotely and with a camera as part of a program called "Wellspy."

## Facility Tour

I began my tour at the tank battery. I made note of a petroleum-like odor at the facility, which was strong near the tanks. Upon climbing the stairs to the tops of the tanks, I used the IR camera (a FLIR GF320) to take video clips of leaking tank thief hatches. Hatches on seven of the eight oil/brine tanks currently in use were leaking, as well as hatches on seven of the eight tanks planned to be used for brine. In addition, the Enardo pressure relief valve was leaking continuously (see IR Camera Video log).

I also took an IR video clip of the flare. The flare was lit throughout the duration of the inspection and I did not note any visible emissions (with the naked eye) from the flare. The IR video clip shows a gas plume moving beyond the combustion zone of the flare. I briefly viewed the glycol dehydrators with the IR camera and noted a very small pinhole-sized leak at one of the connections, which I pointed out to Mr. Pelham but did not record with the IR camera.

**Closing Conference**

I shared my observations with Mr. Pelham regarding which tank hatches were leaking. Mr. Pelham did not claim any information as confidential business information. Mr. Pelham, Ms. Shimko, Mr. Miller and I agreed to caravan to another West Bay facility nearby. We departed the Curtis 1-32 facility at approximately 3:00 pm.

**Photos**

1) Flare, lit.

2) Top of tank battery.

**IR Video Log**

| Video ID number | Description |
|---|---|
| MOV_0720.mp4 | Leaking thief hatch |
| MOV_0721.mp4 | Leaking thief hatch |
| MOV_0722.mp4 | Leaking thief hatch |
| MOV_0723.mp4 | Leaking thief hatch |
| MOV_0724.mp4 | Leaking thief hatch |
| MOV_0725.mp4 | Leaking thief hatch |
| MOV_0726.mp4 | Leaking thief hatch |
| MOV_0727.mp4 | Leaking thief hatch |
| MOV_0728.mp4 | Leaking thief hatch |
| MOV_0729.mp4 | Leaking thief hatch |
| MOV_0730.mp4 | Leaking thief hatch |
| MOV_0731.mp4 | Leaking thief hatch |
| MOV_0732.mp4 | Leaking Enardo valve |
| MOV_0733.mp4 | Leaking thief hatch |
| MOV_0734.mp4 | Flare |